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SEO-ER Hazmat Team.

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Los Alamos National Laboratory Emergency Response Group



LANL Emergency Response
Group

October 16, 2018



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LANL Emergency Response

- LANL Emergency Response Group trains, and is certified, to an all-hazards approach to hazardous materials emergencies.
- The LANL Hazmat Team is staffed by 18 responders from various disciplines, possessing a variety of specialized skills.
- They possess the capability to respond to a wide range of problems including transportation, industrial, and Weapons of Mass Destruction events.



LANL Emergency Response Group



- The Security and Emergency Operations Division Emergency Response Group at LANL has the primary responsibility of responding to hazardous materials emergencies at the Lab.
- Every member of the group is trained and certified to the Hazmat Technician level, at a minimum, as required by U.S. Code of Federal Regulation (CFR 2910.1910.120 – HAZWOPER)
- Some personnel in the group are cross trained to the Hazardous Devices Team which specializes mitigating in unstable chemicals and high-explosive operations.



Response and Training

- **LANL Emergency Response team possesses a wide range of technical backgrounds and leverages this experience to staff a robust response capability.**
- **While motor vehicle accidents and petroleum leaks are most common, the team responds to a number of more technical problems as well:**
 - Legacy chemicals
 - Shock sensitive chemicals/peroxides
 - Pyrophoric materials
 - Chemical leaks and spills
 - Radiological emergencies



Response Capabilities

- **Diverse expertise allows us to draw on many areas of experience.**
- **Personnel have diverse backgrounds, in many cases emergency response was not their first job:**
 - Industrial Hygiene and Safety
 - Fire Service/EMS
 - Chemistry and Biology
 - Health Physics/Radiation Protection
 - Incident Command/Fire Officer
 - Military Explosive Ordnance Disposal (EOD)
 - Instructors
 - Many personnel support other response missions such as Radiological Assistance Program, Accident Response Group, and other Federal response teams.

Response Capabilities – Personal Protective Equipment

- All levels of PPE from Level D to Level A



Level A Ensembles

- All levels of respiratory protection



Level B



Firefighter Turnout Gear

Air Monitoring

- LANL Emergency Response Group fields many tools for air monitoring for hazardous atmospheres:



Multi-gas detection systems for toxic, flammable, and volatile organic compounds.



Mercury vapor detection



Chemical specific detection tubes

Chemical monitoring and detection

- A wide array of chemical detection and identification tools are also deployed.
- In addition to typical monitoring and detection capabilities for acids, oxidizers and peroxides, RAMAN and FTIR technologies are integrated into the team's suite of capabilities.



Radiological Response

- Teams also deploy a diverse tool set for radiological emergencies. This includes capability to detect and monitor all types of radiation. This capability includes dose rate, contamination, and search tools.



Detection of alpha, beta, and gamma radiation sources for search and contamination monitoring



Identifinder for search and nuclide identification



Instrumentation for monitoring dose rate and determination of hazard areas

Specialized tools

- The team uses other specialized tools to form a strong response capability:



Thermal imaging



Bio-agent response



PPb gas detection



Metal alloy identification



Gas/vapor collection for GC/MS analysis

Response capabilities

- **LANL Emergency Response Group maintains numerous assets for response to a wide variety of emergencies:**

- Three dedicated hazmat vehicles: Two fully equipped response vehicles and a rapid response/command vehicle.
- Hazardous Devices Response Vehicle.
- Total containment vessel for on-site explosive destruction of shock-sensitive/unstable materials.
- Multiple remotely operated robotics platforms to include commercially available EOD robotic platforms and a remotely operated Bobcat skid-steer.



Training, Certification, and Outreach

- All Hazmat response personnel with LANL go through 120 to 160 hours of training to certify as Hazmat Technicians. This training is in compliance with 29 CFR 1910.120 and NFPA 472.
- Certification is controlled through the New Mexico Firefighter Training Academy and the California Specialized Training Institute. Academy certification is accredited by the International Fire Service Accreditation Congress (IFSAC)
- A number of team members are certified instructors, and/or adjunct instructors with the NM Fire Academy.
- We are able to design and conduct general and specialized training to numerous organizations: Fire Departments, Law Enforcement, Arson Investigators, Bomb Squads, etc...

Training Events

- **Hazmat Challenge:** Annual event designed for Hazmat Teams. Scenario-based training, now in its 22nd year. A wide variety of problems are presented for teams to solve.
- **International Association of Arson Investigators:** A training evolution where arson investigators observe and train on burned structures and vehicles, and conduct post-blast, as well as post burn investigations.
- **Customer Focused Training:** Training events developed with specific customer goals in mind. This could be WMD, rail, aircraft, radiological, etc...
- **Refresher training:** Training conducted to help responders maintain skills and competencies in their specific fields; Hazmat Technical Rescue, EOD.

TA-49 Training Facility

- The LANL Emergency Response Group manages a large training facility at LANL Technical Area 49.
 - This facility is currently 40 acres (just over 16 hectares) and is home to a variety of structures and equipment.
 - Facilities include aircraft, vehicles, rail transport, confined space, residential, commercial, and industrial structures.
 - Training operations use compressed air and water to simulate hazardous materials.
 - Capability for radiological training in high radiation fields.



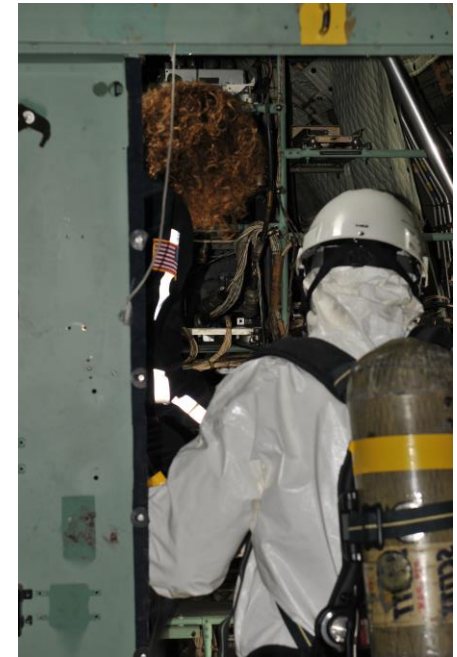
TA-49 Training Facility

- Facility is also an explosives operations area, allowing us to support various aspects of emergency response.
- Capability to develop scenarios with as little simulation as possible. Teams can train as they would respond without having to verbalize or nationalize most of their activities.



Aircraft

- The training facility currently has three airframes; C130 cargo aircraft, HU-25 Coast Guard aircraft, and a small Learjet type airframe.
 - Aircraft can be reconfigured and set up to meet various scenarios to include cargo, passenger, and accident scenarios.



Rail

- The training facility has a small rail yard, with track switch capability. On site are; dry hopper car, box car, passenger car, flat-bed rail car, and a tank car which was modified allowing us to train on the most common tank car fixtures.



Box Car, Hopper Car, Passenger Car



Rail Tank Car



Chlorine dome



Anhydrous ammonia dome



Acid dome



General commodity dome

Transportation: fuel, high pressure, liquid, mixed cargo



Residential

- A collection of portable, lightweight, structures used to simulate residential areas. Repairable and replaceable allowing teams to practice forcible entry, breaching, and access procedures.



Confined Space

- A permanent confined space simulation tool with modular rooms and pathways. Allows teams to practice confined space operations and low light operations.



Commercial

- Training stations simulating a motel, grocery store and medical clinic. Designed to allow training for entry, access, and render safe operations.



Gas station/convenience store



Commercial



Medical clinic



Commercial



Grocery store/market



Industrial

- Many different components to simulate industrial emergencies including drums, gas cylinders and piping.



Hazmat Challenge and Training Evolutions

- The annual Hazmat Challenge is a week-long training event hosted by the LANL Emergency Response Group at TA 49.
- Teams from all over the United States participate.
- Supported by many government agencies: Department of Transportation (DOT), Federal Emergency Management Agency (FEMA), Department of Homeland Security (DHS), etc...
- Scenarios are based on real-world responses and are designed to test responder's planning and execution to mitigating a release of hazardous materials.



Hazmat Challenge

- Teams not only get 40 hours of annual training, but the event also provides a competition to determine the best Hazmat Team for the year.
- Provides an opportunity for teams from around the country to network and exchange ideas and skills.
- All training is based on common procedures, skills, and tools that are required for Hazmat Technicians nationwide.



Hazmat Challenge

• Examples of scenarios and evaluation tools:

* For scoreboard use only

HAZMAT Challenge Scenario

Title of Prop: Gas Station

Scenario:

You have been called to a gas station where a tractor/trailer driver has reported a bulging drum in his shipment. During a routine pre-trip load inspection, the driver noticed that one of the drums was bulging. He noted that the drum was labeled as Hydrogen Peroxide 35%. At that time, the driver backed away from the truck, informed the gas station staff and called 911. The area was evacuated and local PD has created a perimeter around the gas station.

The HAZMAT team is requested to perform the following actions:

Your team is requested to create a plan to address the following:

- *Verify the material in the bulging drum.*
- *Identify the other materials in the shipment.*
- *Segregate products as necessary.*
- *Mitigate the bulging drum.*
- *Stabilize the scene for cleanup operations.*

Before time is started, you may ask questions relevant to this event. As applicable, answers will be given to you by the Controller.

Please verbalize all actions to the Controller.

Please note the following:

You have Fire, Medical and Law Enforcement assets on scene, to include the local bomb squad, to assist if needed.

NOTES:

If any of the Controllers see an unsafe act or condition **related to team activities**, the safety observer will yell "stop," and team activities will be stopped until the issue is corrected. Time will **NOT** be stopped, but the problem or condition will be corrected before the team is allowed to continue.

If there is a safety issue **NOT** related to team activities (*e.g.*, lightning, snakes, fire), play and time will **both** be stopped until the issue is resolved. Teams will resume play **WITHOUT** time penalty once the issue is corrected.

Any Questions?

Good Luck !!

Prop Name: <u>Gas Station</u>			
Evaluation Sheet			
Maximum Time: 90 minutes			
Team Name:	Date:	Minimum Required PPE: (circle one) Level B	
Evaluation Criteria		Points Available	Points Awarded
Walk-around hazard assessment/scene assessment (4 points each): 1) Verify isolation zone and protective actions in place 2) Verify resources on hand, team requests additional resources as needed 3) 360° assessment of trailer and area 4) Ensures vehicle is off and trailer is stabilized (wheel chocks) 5) Retrieves (or requests) shipping paperwork from vehicle		20	
Safely enter the trailer and report findings		5	
Identify pertinent hazards and conditions to determine PPE selection and mitigation plan (5 points each): 1) Bulging drum of hydrogen peroxide 2) Presence of incompatible materials 3) At least a basic tech ref – reference shipping papers, request SDS forms, ERG, NIOSH, WISER. Looking for primary hazards, suggested protective equipment, IDLH, TWA, main incompatibilities.		15	
Segregation of incompatible materials and/or undamaged packages		10	
Mitigation of bulging drum: 1) Manual removal of bung cap = 0 points 2) Removal of drum from vehicle for remote mitigation outside (1/2 points: movement of drum would be unsafe, but remote mitigation would be acceptable) 3) Remote mitigation of drum (robot or PAN) specifying how and where drum will be vented (above liquid level = full points, within liquid level ½ points //in the event that option #2 was selected prior to remote mitigation and venting was done within the liquid level team would only receive ¼ points for this section)		30	
Placement of secondary containment or compatible retention material to limit liquid spread		5	
Use of monitoring and sampling equipment to determine/verify conditions and hazards (5 points for determination of liquid level and 5 points for use of oxidizer test strips) Note – if teams can provide a good justification based upon review of available information confirming that material in drums is hydrogen peroxide they can receive 5 points in lieu of using test strips: 1) Thermal imaging camera to determine liquid level 2) Sounding to determine liquid level 3) Use of oxidizer paper to verify hydrogen peroxide		10	
Determination that there were violations with this shipment (2.5 points each): 1) Incompatible container was used for hydrogen peroxide 2) Location of the Hydrogen Peroxide in the trailer was inappropriate		5	

Hazmat Challenge

- Simulated documents

REMOVE THIS COPY AND APPLY TO PACKAGE

HAZARDOUS MATERIALS SHIPPING PAPER

Account number 21608-56180	Emergency Contact Number 505-475-8976	For Air Services Only (See 49 CFR 175.64 for details. Not applicable to Mode)
Reference Number 49-113-87545	Passenger Aircraft	
Hazardous Materials Description and Quantity Hydrogen Peroxide, Aqueous Solution, 35% Peroxide U.N. 2014, Class 5.1, PG II 21 Gallons, 242 lbs Container 1 of 4		
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/labelled, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.		Carrier Use Only Initials
If this shipment contains radioactive materials acceptable for passenger aircraft, such material is exempted for use in, or incident to, research, medical diagnosis or treatment.		SUC 2018-989-7205
Signature	Date	Date 08/11/2018
Page 1 of 1		1 Package



**SIMMONDS
SANITARY, LLC**

Simmonds Sanitary, LLC
3323 Effervescent Lane
Eden, TX 76837
(325)869-4468

Hydrogen Peroxide



! DANGER

May intensify fire, oxidizer. Harmful if swallowed. Causes serious eye damage. May cause respiratory irritation. May cause long lasting harmful effects to aquatic life.



PREVENTION
Keep away from heat. Keep/Store away from clothing/combustible materials.



Take any precaution to avoid mixing with combustibles. Avoid breathing mist, vapors or spray. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.



RESPONSE

If swallowed: Call a poison center or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. Take off contaminated clothing and wash before reuse.

Hydrogen Peroxide, 35% UN2014/CAS# 7722-84-1

Date: 08/11/2018 **BILL OF LADING** Page 1 of 3

SHIP FROM Name: Marr-or-Less Distribution Address: 6439 Diamond Dr City/State/Zip: Loco Hills, NM 88255 SID#: _____ FOB: <input type="checkbox"/>		Bill of Lading Number: 49-113-87545 BAR CODE SPACE					
SHIP TO Name: Treadaway Supply Address: 1821 Storage Bin Circle City/State/Zip: Arriola, CO 81321 CID#: 6554-5897-26 FOB: <input checked="" type="checkbox"/>		CARRIER NAME: Enioles Freight Trailer number: 0814 Seal number(s): 2929 SCAC: EFCOG Pro number: N/A BAR CODE SPACE					
THIRD PARTY FREIGHT CHARGES BILL TO: Name: N/A Address: City/State/Zip:		Freight Charge Terms: (freight charges are prepaid unless marked otherwise) Prepaid <input checked="" type="checkbox"/> Collect <input type="checkbox"/> 3rd Party <input type="checkbox"/> <input checked="" type="checkbox"/> Master Bill of Lading: with attached underlying Bills of Lading (check box)					
SPECIAL INSTRUCTIONS: Don't Screw Up...							
CUSTOMER ORDER INFORMATION							
CUSTOMER ORDER NUMBER	# PKGS	WEIGHT	PALLET/SLIP (CIRCLE ONE)	ADDITIONAL SHIPPER INFO			
475692-1	4	970 lbs	<input checked="" type="radio"/> N	N/A			
485971-6	23	495 lbs	<input checked="" type="radio"/> N	N/A			
366970-4	17	325 lbs	<input checked="" type="radio"/> N	N/A			
252411-1	16	455 lbs	<input checked="" type="radio"/> N	N/A			
636396-8	14	220 lbs	<input checked="" type="radio"/> N	N/A			
			<input type="radio"/> Y	N			
			<input type="radio"/> Y	N			
GRAND TOTAL							
HANDLING UNIT		PACKAGE	WEIGHT	H.M. (X)	CARRIER INFORMATION	COMMODITY DESCRIPTION	LTL ONLY
QTY	TYPE	QTY	TYPE	WEIGHT			NMFC # CLASS
4	Drums	4	Drums	970 lbs	X	Hydrogen peroxide, aqueous solution, 35% U.N.2014, 5.1, PG II.	1514-87 2
1	PLT	13	Box	300 lbs		Motor Oil	3654 55 300
		5	Box	150 lbs		Antifreeze	21076 305
		2	Box	20 lbs		Transmission Fluid	55587-12/1 308
		2	Box	20 lbs		Windshield Washer Fluid	454318 P 5216 C E
		1	Box	2 lbs		Oil Filters	354718 111
					GRAND TOTAL		
Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding \$_____ per _____					COD Amount: \$ _____ Fee Terms: Collect: <input type="checkbox"/> Prepaid: <input type="checkbox"/> Customer check acceptable: <input type="checkbox"/>		
NOTE Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. • 14706(c)(1)(A) and (B). RECEIVED: subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper. If applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.					The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.		
SHIPPER SIGNATURE / DATE		Trailer Loaded:		Freight Counted:		CARRIER SIGNATURE / PICKUP DATE	
This is to certify that the above named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.		<input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver		<input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver/pallets said to contain <input type="checkbox"/> By Driver/Pieces		Carrier acknowledges receipt of packages and required documents. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	

Reset

Print

Transportation Scenarios



Tank leaks



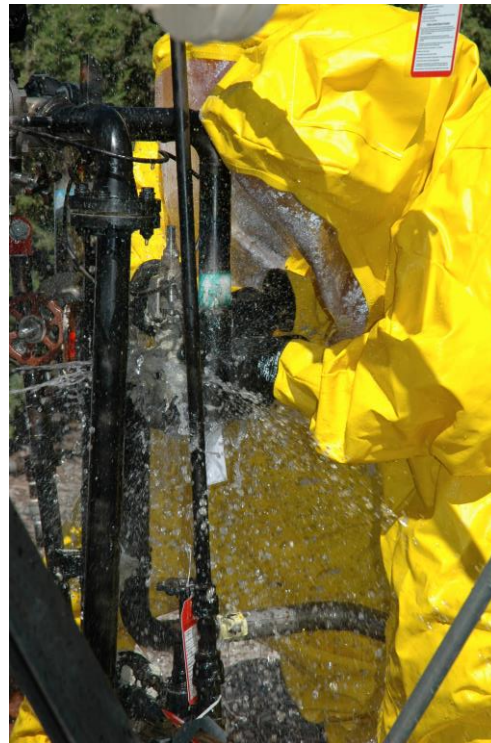
Aircraft incidents



Rail emergencies

Industrial and Commercial Scenarios

- Scenarios based on industrial emergencies and commercial emergencies.



WMD and Criminal Events

- Scenarios based on events from the media and responder reports. May be terrorist related, drug labs, or other activities.



Summary



- LANL Emergency Response Group provides a robust response capability with a diverse background and knowledge base.
- The team works to ensure they have state of the art tools and training to maintain their capabilities.
- Assess to training facilities such as TA 49 allow teams to develop and implement performance based training to hone skills.
- Diverse tools and equipment at TA 49 enable the development of realistic and custom designed training events. These events minimize the simulations common at many venues, and allow teams to train as they would respond.